CLAIMS

1. A fusion protein characterised in that it comprises the amino acid sequences of different allergens belonging to the non-specific Lipid Transfer Protein (ns-LTPs) family, in that said sequences lack one or more of the four disulphide bridges present in the sequence of the wild type allergens and in that said sequences maintain essentially the same length of the sequences of wild type allergens.

2. The fusion protein according to claim 1, characterised in that the amino acid sequences lack at least one disulphide bridge in the amino terminal region comprised between the amino acid residues 1 and 30.

3. The fusion protein according to any one of the claims 1 to 2, characterised in that the amino acid sequence of each of the allergens is independently mutated by elimination or substitution of one or more cysteine residues involved in the formation of a disulphide bridge.

4. The fusion protein according to any one of the claims 1 to 3, characterised in that it comprises the allergens Parj1 and Parj2 of the *Parietaria judaica* species.

5. The fusion protein according to any one of the claims 1 to 4, characterised in that the amino acid sequence of each of the allergens is independently mutated by elimination or substitution of one or more cysteine residues in positions corresponding to the positions 4, 14, 29, 30, 50, 52, 75 and 91 of the amino acid sequence of Parj1 and/or Parj2 allergen.

6. The fusion protein according to any one of the claims 1 to 5, characterised in that it contains the amino acid sequences of the Parj1 and Parj2 allergens, both independently modified by substitution of cysteine residues with Asn, Ser, Thr, Ile, Met, Gly, Ala, Val, Gln or Leu residues in positions 29 and 30 or 4, 29 and 30 or 29, 30, 50, 52.

7. The fusion protein according to claim 6, having the amino acid sequence SEQ ID NO: 4.

8. A nucleotide sequence comprising the DNA coding for the fusion protein according to any one of the claims 1 to 7.

9. The nucleotide sequence according to claim 8 comprising the nucleotide sequence SEQ ID NO: 3.

10. An expression or cloning system comprising the nucleotide sequence according to claims 8 or 9 flanked by suitable sequences for controlling, promoting and regulating the expression.

11. A host cell transformed by means of the expression or cloning system according to claim 10.

12. The fusion protein according to any one of the claims 1 to 7, for use in a diagnostic or therapeutic treatment method *in vivo* and/or *in vitro*.

13. The fusion protein according to claim 12, for use as hypoallergenic immunologic agent in the specific immunotherapy (SIT) treatment of allergies.

14. The fusion protein according to claim 12, for use in the treatment of rhinitis, conjunctivitis, urticaria, angioedema, eczema, dermatitides, asthma, anaphylactic shock.

15. The fusion protein according to claim 12, for the preparation of DNA vaccines.

16. A pharmaceutical composition comprising the fusion protein according to any one of the claims 1 to 7 and a pharmaceutically acceptable excipient.

17. The pharmaceutical composition according to claim 16 in the form of solution, suspension, emulsion, cream, ointment or implant.

18. The pharmaceutical composition according to claim 16, for a parenteral, subcutaneous, intramuscular, intravenous, topical, oral administration or for subcutaneous implantation.

19. A method of preparation of the fusion protein according to any one of the claims 1 to 7, characterised

in that suitably mutated amino acid sequences of different allergens are produced and linked directly or via a spacer for chemical synthesis or by expression, in the form of fusion protein, in genetically modified host cells.

20. The method of preparation according to claim 19, characterised in that host cells are transformed with an expression vector comprising the DNA coding for the amino acid sequences in fused form, mutated via site-specific mutagenesis in codons coding for cysteine residues.

21. The method of preparation according to claim 20, characterised in that one or more cysteine residues are substituted with Asn, Ser, Thr, Ile, Met, Gly, Ala, Val, Gln or Leu residues.

22. The method of preparation according to any one of the claims 19 to 21, characterised in that one or more cysteine residues in position 29, 30 or 4, 29, 30 or 29, 30, 50, 52 are substituted with alanine or serine residues.

23. The method of preparation of a pharmaceutical composition according to any one of the claims 16 to 18, characterised in that the heterodimer protein is mixed in an immunologically active amount to a pharmaceutically acceptable excipient.